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Pesticide Fact Sheet No. 221: Sumithrin

(U.S.) Environmental Protection Agency, Washington, DC

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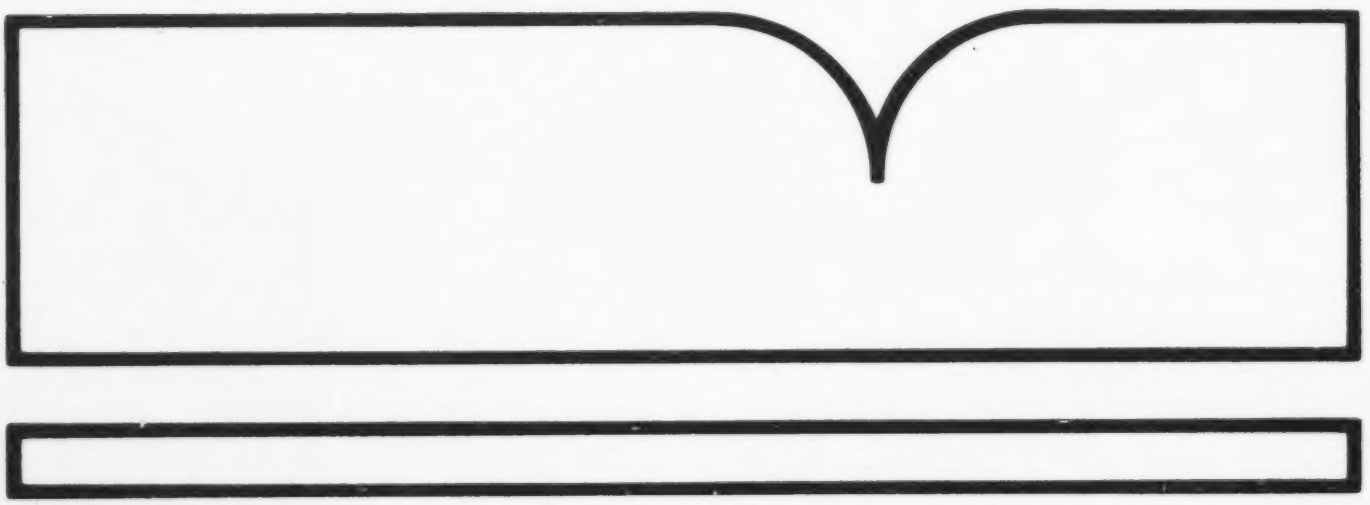

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the ~~the~~ following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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United States
Environmental Protection
Agency

Office of Pesticides
and Toxic Substances
(H7501C)

540/FS-91-131

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EPA

Pesticide Fact Sheet

Name of Chemical: Sumithrin
Reason for Issuance: Registration Standard
Date Issued: November 1987
Fact Sheet Number: 221

1. Description of Chemical

Generic Name: 3-phenoxybenzyl -(1RS,3RS; 1RS,3SR)-2,2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate
Common Name: Sumithrin, phenothrin
Trade Name: Sumithrin
EPA Shaughnessy Code: 069005
CAS Registry No.: 26002-80-2
Pesticide Type: Insecticide/Miticide
Chemical Family: Synthetic Pyrethroid
Manufacturer: Sumitomo Chemical America, Inc.; McLaughlin Gormley King Company

2. Use Patterns and Formulations

Application Sites: Treatments of transportation vehicles such as aircraft, ships, railroad cars, and truck trailers; treatments in commercial, industrial, and institutional nonfood areas; treatments in homes and gardens (indoor and outdoor); treatments in pet quarters and on pets; greenhouse applications for ornamentals.

Types of Formulations: Pressurized liquids, ready-to-use liquids, soluble concentrate liquids, emulsifiable concentrates, dust.

Types and Methods of Application: Contact spray, fogger; space spray; foliar; animal dip, spray, shampoo.

3. Science Findings

Chemical Characteristics -

Physical state:	liquid
Color:	colorless
Molecular weight:	350.5
Empirical formula:	$C_{23}H_{26}O_3$
Specific gravity:	$d\ \frac{25}{25} = 1.061$

Solubility in various solvents: Soluble in methanol, isopropanol, ethylcellosolve, ethyl acetate, acetone, cyclohexanone, methyl isobutyl ketone, o-cresol, xylene, methylnaphthalene, n-hexane, deodorized kerosene, DMF, chloroform, and methylchloroform; almost insoluble in water (2ppm).

Toxicology Characteristics:

- Acute Oral: data gap
- Acute Dermal: data gap
- Primary Dermal: data gap
- Primary Eye irritation: data gap
- Skin Sensitization: data gap
- Acute Inhalation: 4-hour LC_{50} for the technical is greater than 1.18 mg/L in rats and mice. Toxicity Category II.
- Subchronic Oral: Dog study indicates a NOEL of 300 ppm and LEL of 1000 ppm based on increase of liver weight and increase in serum alkaline phosphatase.
- Subchronic Dermal: data gap
- Subchronic Inhalation: data gap
- Teratogenicity: data gap
- Mutagenicity: Study shows that Sumithrin is not mutagenic. Structural chromosomal aberration and other genotoxic effects are data gaps.

Human Exposure

There are no indicated concerns for human exposure at this time

Environmental Characteristics:

Data gaps exist for all applicable studies.

Ecological Characteristics:

- Avian Oral Toxicity: Acute oral LD_{50} greater than 2510 mg/kg (bobwhite quail)

- o Avian Subacute Dietary Toxicity: LC_{50} greater than 5620 ppm for mallard duck; data gap for upland game bird.

- o Freshwater Fish Acute Toxicity: Data gaps for coldwater and warmwater.

- o Freshwater Invertebrate Toxicity: LD_{50} greater than 300 ppm for Daphnia magna.

Tolerance Assessment:

There are no tolerances for Sumithrin.

Summary Science Statement:

Sumithrin is a synthetic pyrethroid insecticide/miticide that is moderately toxic via the inhalation route. Due to data gaps, a complete acute toxicity profile cannot be determined. Subchronic effects indicate increases in liver weights and increases in alkaline phosphatase. Sumithrin is not mutagenic. Due to data gaps, a determination as to the environmental fate of Sumithrin cannot be made. Environmental data have been requested. Reentry data and spray drift data are not required for current uses. There are no indicated concerns for human exposure at this time. Sumithrin may be characterized as practically nontoxic to avian species and aquatic invertebrates. The only major outdoor use is as a mosquito adulticide. This use pattern presents minimal hazard to birds, mammals, and aquatic invertebrates. Based on available data, there is a low potential for hazard to endangered species.

4. Summary of Regulatory Position and Rationales

- o The Agency is not placing Sumithrin into Special Review.

- o The Agency is not requiring any endangered species labeling.

- o No groundwater labeling is required.

- o No reentry, spray drift,or protective clothing restrictions are required at this time.

5. Summary of Major Data Gaps

- o All product chemistry

- o Acute oral toxicity

- o Acute dermal toxicity

- o Primary eye irritation
- o Primary dermal irritation
- o Dermal sensitization
- o 21-Day subchronic dermal toxicity
- o 90-Day inhalation
- o Teratogenicity
- o Chromosomal aberration
- o Other genotoxic effects
- o Avian dietary LC_{50} (upland game bird)
- o Warmwater fish LC_{50}
- o Coldwater fish LC_{50}
- o Hydrolysis
- o Photodegradation in water and soil
- o Aerobic soil metabolism
- o Leaching and adsorption/desorption
- o Terrestrial field dissipation
- o Fish accumulation

6. Contact Person at EPA

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